



## mAIR Medical Air, cAIR Combined Air & sAIR Surgical Air Systems EN ISO 7396-1/HTM 02-01 and HTM2022 EurPh 400V 50Hz, 380V 60Hz, 4 Bar & 7 Bar Outlet Oil Free Tooth Compressors

### SPECIFICATION

#### Air Plant System

The Medical Air System is a modular base-mounted design consisting of oil free rotary tooth compressor modules with fixed or variable speed drive, a duplex air purification module with central controller, and air receiver modules. The Air System shall conform to EN ISO 7396-1 and NHS Health Technical Memorandum HTM02-01 or HTM2022. Medical quality air to the European Pharmacopoeia monograph shall be delivered at pressures of 400 kPa (4 bar) or 700kPa (7 bar) gauge for supply of the hospital medical or surgical air systems.

Medical Air Systems shall be duplexed such that any single functional component failure will not affect the integrity of the medical compressed air supply.

Surgical Air Systems shall have a duplex air purification module and a simplex compressor. Additional compressors shall be available to duplex the compressors, such that any single compressor failure will not affect the integrity of the air supply.

The Medical Air Systems are 'CE' marked under the Medical Devices Directive 93/42/EEC with approval from notified body no. 0088 (Lloyd's Register Quality Assurance). Under this directive, the specified products are classified as Class IIb Medical Devices.

#### Sources of Supply

##### HTM02-01 and ISO7396-1

The Medical Air Plant System will produce the primary supply with two compressors on standby (unless an automatic manifold is used as secondary (HTM02-01) or third (ISO7396-1) supply). For duplex plant, the secondary (HTM02-01) or third (ISO7396-1) supply shall be an automatic manifold. For triplex plant, each compressor can supply the total hospital flow. If more than three compressors are installed, the total hospital flow will be split over multiple compressors.

##### HTM2022

The Medical Air Plant System will produce the primary supply with one compressor on standby. For duplex plant, each compressor can supply the total hospital flow. If more than two compressors are installed, the total hospital flow will be split over multiple compressors. The back-up compressor will form the secondary supply. A third supply shall be from an automatic manifold capable of supplying the average hospital demand for 4 hours.

#### Compressor Modules

##### Fixed Speed Compressors

Compressors shall be Atlas Copco ZT MED two-stage oil free rotary tooth compressors suitable for both continuous and frequent start/stop operation at a nominal outlet pressure of 850 kPa (8.5 bar) or 1000 kPa (10 bar) gauge. The tooth element shall be stainless steel. The air quality shall be 100% oil free, certified ISO8573-1 Class 0 by an independent agency. The compressor shall have a sound insulating canopy. Compressors shall be supplied with an intercooler and aftercooler with a dedicated radial quiet running fan to maximise cooling and efficiency. Minimum IE3/NEMA Premium electric motors shall be used; motors with lower efficiency ratings are not acceptable. The compressor shall be fitted with a high-definition colour display controller, a dry motor coupling requiring no lubrication and electronic zero-loss water drains. The noise level of the compressor shall be maximum 72dB(A). The compressor shall have the following features as required by HTM02-01/HTM2022:

- Ammeter
- Main switch
- Temperature sensor downstream the aftercooler
- Failed-to-go-on-load feedback pressure switch
- Automatic restart after voltage failure

##### Variable Speed Compressors

Alternatively, compressors shall be Atlas Copco ZT VSD MED two-stage oil free rotary tooth compressors fitted with Variable Speed Drive. By including an AC-DC converter, along with associated control hardware and software it will enable the compressor to continuously match its running speed with the flow demand required by the hospital. By using such technology, start currents will be reduced, machine life will be prolonged and energy savings of up to 35% shall be achievable. The compressor shall operate from 400- 1000kPa (4-10 bar) gauge.

The tooth element shall be stainless steel. The air quality shall be 100% oil free, certified ISO8573-1 Class 0 by an independent agency. The compressor shall have a sound insulating canopy. Compressors shall be supplied with an intercooler and aftercooler with a dedicated radial quiet running fan to maximise cooling and efficiency. Minimum IE3/NEMA Premium electric motors shall be used; motors with lower efficiency ratings are not acceptable. The compressor shall be fitted with a high-definition colour display controller, a dry motor coupling requiring no lubrication and electronic zero-loss water drains. The noise level of the compressor shall be maximum 72dB(A). The compressor shall have the following features as required by HTM02-01/HTM2022:

- Ammeter
- main switch
- temperature sensor downstream the aftercooler
- failed-to-go-on-load feedback pressure switch
- automatic restart after voltage failure

Full VSD air plant shall incorporate VSD controllers on all compressors, cycling the lead compressor to ensure even wear as per HTM02-01 requirements.

#### Air Purification Module

##### Dryer and filter system

The duplexed air purification module shall incorporate high efficiency water separators, oil coalescing filters, heatless regenerative desiccant dryers, activated carbon filters with optional hopcalite catalyst, bacterial filters and pressure regulators. The performance of the filters shall be according to below specifications:

- Oil coalescing two-in-one high efficiency filter: mass efficiency of 99,991%, tested according to ISO 8573-2 & ISO 12500-1;
- Activated carbon filter: max remaining total oil content of 0,003 mg/m<sup>3</sup>, tested according to ISO 8573-5 & ISO12500-2;
- Bacterial filter: particle count efficiency of 99,98% at MPPS=0.06µm, tested according to ISO 12500-3.

The dryer shall have a purge valve with multiple orifice sizes to adjust the purge rate, eliminating the need for additional purge plugs. Optional electrical contacts may be installed on the filters to provide warning alarms on the dryer controller in the event of high pressure drop (ie blockage) and shall also include connections for BMS.



Contaminants in the delivered air downstream of the bacterial filters shall be maintained at levels below those shown in the table below.

Air Plant Systems with variable speed drive compressors shall be fitted with a hopcalite filter and electrical contacts on the filters as standard.

Model Name	Threshold
H <sub>2</sub> O	67 ppm v/v
Dry particulates	Free from visible particulates in a 75 litre sample
Oil (droplet or mist)	0.1 mg/m <sup>3</sup>
CO	5 ppm v/v
CO <sub>2</sub>	500 ppm v/v
SO <sub>2</sub>	1 ppm v/v
NO	2 ppm v/v
NO <sub>2</sub>	2 ppm v/v

#### Control System

The cubicle of the medical air purifier shall contain both the central controller as well as the individual dryer controllers.

The central control system shall provide an intelligent human machine interface incorporating on board flash memory and real-time clock for recording operational parameters in the in-built event log. The central control system shall operate at low voltage and include BMS connection for plant fault, plant emergency, reserve fault and pressure fault. Visualisation of plant inputs, outputs and status through a web browser, using a simple Ethernet connection shall be available. The central control unit shall incorporate a user friendly 5.7" high-definition colour display with clear pictograms and LED indicators, providing easy access to system operational information.

The central control system shall employ automatic rotation of the lead compressor & dryer to maximise life and ensure even wear. The compressors & dryers shall be fitted with their own individual controller. These controllers shall be fitted with the necessary logic to act as a back-up in case of a central controller malfunction, ensuring continued operation.

#### Dryer Purge Control

The dryer control system shall incorporate a Purge Saver Energy Management system that freezes the regeneration of the desiccant once adequate dew point is reached in the inactive tower. Only when the dewpoint level in the active tower deteriorates to an unacceptable level will the intelligent controller switch towers.

#### Dew Point Monitoring

The dryer shall incorporate a dew point hygrometer with an accuracy of  $\pm 3^\circ\text{C}$  in the range -20 to -100°C atmospheric dew point and 4-20mA analogue output. Aluminium oxide or palladium wire sensors are not acceptable. An alarm condition shall trigger on the dryer control panel if the dew point exceeds a -46°C atmospheric set point. The plant control unit shall display the dewpoint of the delivered air to enable monitoring of the air quality by the hospitals estates department. Voltage-free contacts shall be included to enable the dew point alarm signal to be connected to a central medical gas alarm system and/or building management system (BMS). To enable periodic calibration of the dew point sensor element, the hygrometer shall be remotely connected downstream of the dryer via a micro-bore tube. It is not acceptable to install the sensor directly into the medical air supply pipeline.

#### Receiver Assembly

Air receivers shall comply with PED 2014/68/EU, supplied with relevant test certificates. Each air receiver shall be of steel construction with powder coating for protection (CE standard) or shall be hot dip galvanised inside and out (MOM standard) and fitted with a zero loss electronic drain valve. Float type drain valves are not acceptable. The

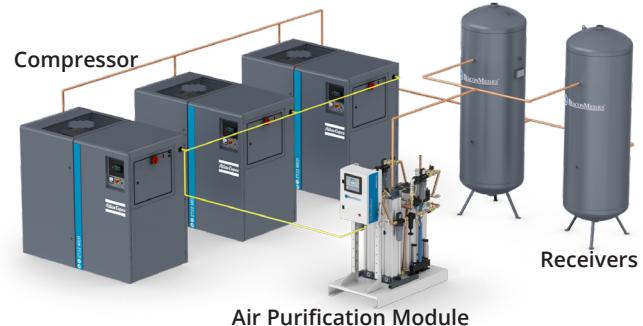
receiver assembly shall be fitted with a pressure safety valve capable of passing the maximum flow output of the compressor at 10% receiver overpressure. The receiver shall be further protected by a safety pressure relief valve and include a pressure gauge.

#### Optional Items

There shall be the following options available for enhanced operation of the air plant system:

- VSD compressors (harmonics filter standard included for installation close to highly sensitive equipment)
- MOM standard receivers with 3rd party certification, hot dip galvanised steel inside and out
- EWD zero loss electronic water drains for the dMED dryer including secure mounting to the dryer base
- QDT saturation indicators to give clear visual indication of oil carry over to the activated carbon tower (only up to 10bar)
- CO and CO<sub>2</sub> monitors including full integration into the ES-MED central controller giving alarm warnings when unacceptable CO and CO<sub>2</sub> levels are present

#### Typical Layout



Note:

Interconnecting pipework (brown illustration) between components to be made on site and provided by the installer. Controller CAN cables are provided as a 10m assembly with each compressor which can be shortened on site if required.



## Unique Selling Proposition

### ZT MED Compressor

- 1 Certified Class 0: 100% oil-free air, certified as ISO8573-1 Class 0 by the renowned TÜV institute, eliminates the risk of oil contamination.
- 2 Two-stage tooth element: By using a two-stage element, energy consumption is lower compared to a single stage compression system as no venting of the pressure is required.
- 3 Optional Variable Speed Drive: By adjusting the motor speed, the output flow rate of the compressor is automatically matched with the air demand from the hospital, resulting in energy savings up to 35%.
- 4 Fitted for Medical applications: All HTM compressor requirements like ammeter, aftercooler temperature sensor, failed-to-go-on-load switch, etc. are factory-fitted. Furthermore, specific software safety features are added.



### Purifier

- 1 Complete Air Purification Package: Everything to clean the air is pre-piped and wired in a fully duplexed package, with a six-step purification process that provides European Pharmacopeia compliant air (when hopcalite is fitted)
- 2 Compact Design: With the unique design of the extruded aluminum desiccant dryer towers, the air purification package components are compactly configured to minimize footprint without compromising service access.
- 3 Ease of Service: The top loading desiccant cartridges and externally fitted components make servicing the air purification package quick with easy access for all service parts.
- 4 Advanced Medical Controls: The advanced master controller monitors and controls both the compressors and the air purification module. Fitted with redundancy and medical safety features, the controller operates the system efficiently with a very tight pressure band and equalization of running hours on the compressors and dryers.




**Compressor Selection Table 50Hz**
**Fixed Speed**

Model Name	ZT15 MED	ZT18 MED	ZT22 MED	ZT30 MED	ZT37 MED	ZT45 MED
<b>Output flow (litres/minute) * 8.6 bar variant</b>	2094	2742	3192	4422	5526	6534
<b>Output flow (litres/minute) * 10 bar variant</b>	1812	2184	2718	n/a	n/a	n/a
<b>Footprint L x W x H (mm)</b>	1760 x 1026 x 1621	1760 x 1026 x 1621	1760 x 1026 x 1621	2005 x 1026 x 1880	2440 x 1026 x 1880	2440 x 1026 x 1880
<b>Compressor weight (kg)</b>	1060	1080	1086	1432	1432	1432
<b>Service connection (mm)</b>	42	42	42	42	42	42
<b>Noise level/pump (dB[A])</b>	67	70	72	66	68	70
<b>Maximum ambient temperature (°C)</b>	46	46	46	46	46	46
<b>Supply voltage (v)</b>	400	400	400	400	400	400
<b>Supply frequency (Hz)</b>	50	50	50	50	50	50
<b>Nominal motor rating (kW)</b>	15	18	22	30	37	45
<b>Full load current per compressor (A)</b>	27.1	32.5	39.7	54.1	66.8	81.2
<b>ISO Part Number - 8.6 bar</b>	8102 3397 51	8102 3397 73	8102 3397 95	8102 3398 21	8102 3398 28	8102 3398 38
<b>HTM Part Number - 8.6 bar</b>	8102 3397 52	8102 3397 74	8102 3397 96	on request	on request	on request
<b>ISO Part Number - 10 bar</b>	8102 3397 41	8102 3397 63	8102 3397 85	n/a	n/a	n/a
<b>HTM Part Number - 10 bar</b>	8102 3397 42	8102 3397 64	8102 3397 86	n/a	n/a	n/a

\*Output flow stated at reference conditions

**Variable Speed Drive**

Model Name	ZT22VSD MED	ZT37VSD MED	ZT55VSD MED
<b>Output flow (litres/minute) * 8.6 bar variant</b>	1206 - 3060	2472 - 5838	2472 - 8328
<b>Output flow (litres/minute) * 10 bar variant</b>	1182 - 2820	n/a	n/a
<b>Footprint L x W x H (mm)</b>	2195 x 1026 x 1621	2440 x 1026 x 1880	2440 x 1026 x 1880
<b>Compressor weight (kg)</b>	1120	1432	1432
<b>Service connection (mm)</b>	42	42	42
<b>Noise level/pump (dB[A])</b>	72	71	71
<b>Maximum ambient temperature (°C)</b>	46	46	46
<b>Supply voltage (v)</b>	400	400	400
<b>Supply frequency (Hz)</b>	50	50	50
<b>Nominal motor rating (kW)</b>	22	37	55
<b>Full load current per compressor (A)</b>	39.7	66.8	99.2
<b>Starting current (A)</b>	nominal	nominal	nominal
<b>ISO Part Number - 8.6 bar</b>	n/a	8102 3398 33	8102 3398 43
<b>HTM Part Number - 8.6 bar</b>	n/a	on request	on request
<b>ISO Part Number - 10 bar</b>	8102 3398 07	n/a	n/a
<b>HTM Part Number - 10 bar</b>	8102 3398 08	n/a	n/a

\*Output flow stated at reference conditions

\*\*Variable speed drive compressor operate from 4-13 bar at 0-100% speed - start currents nominal for VSD



### Compressor Selection Table 60Hz

#### Fixed Speed

Model Name	ZT15 MED	ZT18 MED	ZT22 MED	ZT30 MED	ZT37 MED	ZT45 MED
<b>Output flow (litres/minute) * 8.6 bar variant</b>	2052	2724	3222	4578	5562	6516
<b>Output flow (litres/minute) * 10 bar variant</b>	1842	2310	2736	n/a	n/a	n/a
<b>Footprint L x W x H (mm)</b>	1760 x 1026 x 1621	1760 x 1026 x 1621	1760 x 1026 x 1621	2005 x 1026 x 1880	2440 x 1026 x 1880	2440 x 1026 x 1880
<b>Compressor weight (kg)</b>	1060	1080	1086	1432	1432	1432
<b>Service connection (mm)</b>	42	42	42	42	42	42
<b>Noise level/pump (dB[A])</b>	67	70	72	66	68	70
<b>Maximum ambient temperature (°C)</b>	46	46	46	46	46	46
<b>Supply voltage (v) **</b>	380	380	380	380	380	380
<b>Supply frequency (Hz)</b>	60	60	60	60	60	60
<b>Nominal motor rating (kW)</b>	15	18	22	30	37	45
<b>Full load current per compressor (A)</b>	32.5	46	54.7	70.7	70.7	109.5
<b>ISO Part Number - 8.6 bar</b>	8102339755	8102339777	8102339799	8102339823	8102339830	8102339840
<b>HTM Part Number - 8.6 bar</b>	8102339756	8102339778	8102339800	on request	on request	on request
<b>ISO Part Number - 10 bar</b>	8102339745	8102339767	8102339789	n/a	n/a	n/a
<b>HTM Part Number - 10 bar</b>	8102339746	8102339768	8102339790	n/a	n/a	n/a

\*Output flow stated at reference conditions

\*\* 230V 60 Hz 3 phase available on request

#### Variable Speed Drive

Model Name	ZT22VSD MED	ZT37VSD MED	ZT55VSD MED
<b>Output flow (litres/minute) * 8.6 bar variant</b>	1206 - 3216	2472 - 5706	2472 - 8328
<b>Output flow (litres/minute) * 10 bar variant</b>	1182 - 2844	n/a	n/a
<b>Footprint L x W x H (mm)</b>	2195 x 1026 x 1621	2440 x 1026 x 1880	2440 x 1026 x 1880
<b>Compressor weight (kg)</b>	1120	1432	1432
<b>Service connection (mm)</b>	42	42	42
<b>Noise level/pump (dB[A])</b>	72	71	71
<b>Maximum ambient temperature (°C)</b>	46	46	46
<b>Supply voltage (v)</b>	380	380	380
<b>Supply frequency (Hz)</b>	60	60	60
<b>Nominal motor rating (kW)</b>	22	37	55
<b>Full load current per compressor (A)</b>	55.5	92.1	138.8
<b>Starting current (A)</b>	nominal	nominal	nominal
<b>ISO Part Number - 8.6 bar</b>	n/a	8102339835	8102339845
<b>HTM Part Number - 8.6 bar</b>	n/a	on request	on request
<b>ISO Part Number - 10 bar</b>	8102339811	n/a	n/a
<b>HTM Part Number - 10 bar</b>	8102339812	n/a	n/a

\*Output flow stated at reference conditions

\*\*Variable speed drive compressor operate from 4-13 bar at 0-100% speed - start currents nominal for VSD



### Receiver Selection Table

Steel, powder coated (standard)

Receiver Capacity (litres)	250	500	1000	1500	2000	3000
Maximum working pressure (bar)	11	11	11	11	11	11
Individual Receiver Dimensions (diameter, height, mm)	457/2020	610/2105	762/2630	900/2670	1067/2775	1220/3050
Receiver Weight (kg)	155	195	380	520	800	1000
Receiver pipe size (mm)	28	28	42	42	42	42
Receiver Part Number	8102340570	8102340574	8102340576	8102340578	8102340580	8102340582
Receiver Accessory Kit	8102340590	8102340594	8102340596	8102340598	8102340600	8102340602

Galvanised steel (MOM standard - option)

Receiver Capacity (litres)	250	500	1000	1500	2000
Maximum working pressure (bar)	16	16	16	16	16
Individual Receiver Dimensions (diameter, height, mm)	500/1950	600/2350	800/2550	1000/2525	1150/2605
Receiver Weight (kg)	80	160	304	445	557
Receiver pipe size (mm)	22	22	28	28	35
Receiver Part Number	8102045880	8102045906	8102045922	8102045948	8102046300
Receiver Accessory Kit	1609104200	1609104000	1609103400	1609103600	1609103800

### Dryer Selection Table

Dryer Performance Data - 4 bar system

Model Name	dMED 025	dMED 035	dMED 045	dMED 075	dMED 090	dMED 110	dMED 150	dMED 220	dMED 300
Inlet flow (l/m) at 7.5 Bar *	708	991	1274	2124	2549	3115	4248	6230	8495
Output flow (l/m) at 4 bar	581	813	1045	1742	2090	2554	3483	5109	6966
Inlet flow (l/m) at 10 Bar **	963	1359	1756	2917	3483	4276	5833	8523	11638
Output flow (l/m) at 4 bar	836	1181	1527	2535	3024	3715	5068	7402	10109
Part Number - dryer at 4 bar outlet + QDT	8102370963	8102370966	8102370969	8102370975	8102370978	8102370981	8102370984	8102370990	8102370993
Part Number - dryer at 4 bar outlet + QDT hopcalite filter for EurPh	8102371193	8102371196	8102371199	8102371205	8102371208	8102371211	8102371214	8102371220	8102371223

\* 7.5 to 4 bar setup is supplied as standard to the above part numbers.

\*\* For 10 to 4 bar order the abve part numbers plus the option 0000 0224 18 (Factory set 10 to 4 bar dryer)



## Dryer Performance Data - 7 bar System

Model Name	dMED 025	dMED 035	dMED 045	dMED 075	dMED 090	dMED 110	dMED 150	dMED 220	dMED 300
Inlet flow (l/m) at 10 Bar *	963	1359	1756	2917	3483	4276	5833	8523	10638
Output flow (l/m) at 7 bar	836	1181	1527	2535	3024	3715	5068	7402	10109
Part Number - dryer at 7 bar outlet + QDT	8102 3709 64	8102 3709 67	8102 3709 70	8102 3709 76	8102 3709 79	8102 3709 82	8102 3709 85	8102 3709 91	8102 3709 94
Part Number - dryer at 7 bar outlet + QDT hopcalite filter for EurPh	8102 3711 94	8102 3711 97	8102 3712 00	8102 3712 06	8102 3712 09	8102 3712 12	8102 3712 15	8102 3712 21	8102 3712 24

\* 10 to 7 bar setup is supplied as standard to the above part numbers.



## Dryer General Data - All types

Model Name	dMED 025	dMED 035	dMED 045	dMED 075	dMED 090
<b>Footprint L x W x H (mm)</b>	1300 x 750 x 1580	1300 x 750 x 1600	1300 x 750 x 1580	1300 x 750 x 1580	1300 x 750 x 1580
<b>Dryer weight (kg)</b>	220	240	280	320	360
<b>Inlet and outlet connections (mm)</b>	28	28	28	28	28
<b>Supply voltage (v)</b>	115/230	115/230	115/230	115/230	115/230
<b>Supply frequency (Hz)</b>	50/60	50/60	50/60	50/60	50/60
<b>Central control supply - single phase (mm2/Amps)</b>	1.5/1	1.5/1	1.5/1	1.5/1	1.5/1

Model Name	dMED 110	dMED 150	dMED 220	dMED 300
<b>Footprint L x W x H (mm)</b>	1300 x 750 x 1720	1600 x 750 x 1890	1900 x 1080 x 1580	1900 x 1080 x 1920
<b>Dryer weight (kg)</b>	450	510	650	760
<b>Inlet and outlet connections (mm)</b>	28	28	42	42
<b>Supply voltage (v)</b>	115/230	115/230	115/230	115/230
<b>Supply frequency (Hz)</b>	50/60	50/60	50/60	50/60
<b>Central control supply - single phase (mm2/Amps)</b>	1.5/1	1.5/1	1.5/1	1.5/1

\* Output flow stated includes calculated purge lost during the regeneration process of between 15-19% depending on model and inlet pressure.

### Notes on plant:

- Design flow in terms of free air delivered after losses at working pressure with the reserve compressor(s) on standby. Tolerance ±5%.
- Component dimensions supplied do not include maintenance access space, and are provided to allow customer to arrange plant components within plant room. Complete installation drawings are available on request. Quote the drawing number required.
- Duplex systems must be installed with a manifold as the third source of supply for HTM02-01 compliance.
- Mean sound level in accordance with ISO 2151.
- Electrical details are provided for guidance only. Site conditions may impose a larger cable size. For exact cable sizing and fuse/MCB ratings, consult a qualified electrical engineer.

dMED Air Purifier Options	
CO sensor for dMED Air Purifier	0000 0224 27
CO2 sensor for dMED Air Purifier	0000 0224 28
CO2 & CO sensor for dMED Air Purifier	0000 0224 29

EWD on WSD and filters (24V), 025-090	0000 0224 08
EWD on WSD and filters (24V), 110-300	0000 0224 09

QDT saturation indicator	0000 0203 59
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\* Only up to 10bar

Factory set 10 to 4 bar dryer	0000 0224 18
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Air Plant Selection Table

HTM02-01 Medical Air 4 bar - 50Hz

ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-QZF	mAIR-QZF	mAIR-QZF	mAIR-PZF
<b>Model Description</b>	mAIR-TZF4-1635 HTM02-01 50Hz	mAIR-TZF4-2000 HTM02-01 50Hz	mAIR-TZF4-2427 HTM02-01 50Hz	mAIR-TZF4-2427 HTM02-01 50Hz	mAIR-QZF4-3423 HTM02-01 50Hz	mAIR-QZF4-4263 HTM02-01 50Hz	mAIR-QZF4-5109 HTM02-01 50Hz	mAIR-PZF4-6697 HTM02-01 50Hz
<b>Design Flow (L/min) *</b>	1635	2000	2427	3423	4363	5109	6697	
<b>Number of compressors</b>	3	3	3	4	4	4	5	
<b>Type of compressor</b>	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED18 8.6 Bar	
<b>Type of dryer</b>	dMED 090 7.5-4	dMED 110 7.5-4	dMED 150 7.5-4	dMED 150 7.5-4	dMED 220 7.5-4	dMED 220 7.5-4	dMED 300 7.5-4	
<b>Number of receivers</b>	2	2	2	2	2	2	2	
<b>Receiver volume (l) (each)</b>	500 11 Bar	500 11 Bar	1000 11 Bar	1000 11 Bar	1500 11 Bar	1500 11 Bar	2000 11 Bar	
<b>Part Number (With Vessels)</b>	4233601254	4233600880	4233601255	4233600881	4233601256	4233600882	4233601257	4233600883
<b>Part Number (Without Vessels)</b>	4233601254	4233600880	4233601255	4233600881	4233601256	4233600882	4233601257	4233600883

\* Actual Plant Flow is equal to Design Flow (DF)

HTM02-01 Medical Air 4 bar - 60Hz

ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-QZF	mAIR-QZF	mAIR-QZF	mAIR-PZF
<b>Model Description</b>	mAIR-TZF4-1593 HTM02-01 60Hz	mAIR-TZF4-2000 HTM02-01 60Hz	mAIR-TZF4-2457 HTM02-01 60Hz	mAIR-QZF4-3339 HTM02-01 60Hz	mAIR-QZF4-4327 HTM02-01 60Hz	mAIR-QZF4-5109 HTM02-01 60Hz	mAIR-QZF4-5109 HTM02-01 60Hz	mAIR-PZF4-6966 HTM02-01 60Hz
<b>Design Flow (L/min) *</b>	1593	2000	2457	3339	4327	5109	6966	
<b>Number of compressors</b>	3	3	3	4	4	4	5	
<b>Type of compressor</b>	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED22 8.6 Bar	
<b>Type of dryer</b>	dMED 090 7.5-4	dMED 110 7.5-4	dMED 150 7.5-4	dMED 150 7.5-4	dMED 220 7.5-4	dMED 220 7.5-4	dMED 300 7.5-4	
<b>Number of receivers</b>	2	2	2	2	2	2	2	
<b>Receiver volume (l) (each)</b>	500 11 Bar	500 11 Bar	1000 11 Bar	1000 11 Bar	1500 11 Bar	1500 11 Bar	2000 11 Bar	
<b>Part Number (With Vessels)</b>	4233601274	4233600900	4233601275	4233600901	4233601276	4233600902	4233601277	4233600903
<b>Part Number (Without Vessels)</b>	4233601274	4233600900	4233601275	4233600901	4233601276	4233600902	4233601277	4233600903

\* Actual Plant Flow is equal to Design Flow (DF)



## HTM02-01 Combined Medical &amp; Surgical Air 7 bar - 50Hz

## ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	cAIR-TZF	cAIR-TZF	cAIR-TZF	cAIR-QZF	cAIR-QZF	cAIR-QZF	cAIR-PZF
<b>Model Description</b>	CAIR-TZF7-1722 HTM02-01 50Hz	CAIR-TZF7-2172 HTM02-01 50Hz	CAIR-TZF7-2172 HTM02-01 50Hz	CAIR-QZF7-3690 HTM02-01 50Hz	CAIR-QZF7-3690 HTM02-01 50Hz	CAIR-QZF7-5068 HTM02-01 50Hz	CAIR-PZF7-8834 HTM02-01 50Hz
<b>Design Flow (L/min) *</b>	1722	2172	2722	3690	4340	5068	8834
<b>Actual Plant Flow (L/min)</b>	1430	1802	2259	3063	3603	4671	6625
<b>Number of compressors</b>	3	3	3	4	4	4	5
<b>Type of compressor</b>	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED22 10 Bar
<b>Type of dryer</b>	dMED 075 10-7	dMED 075 10-7	dMED 090 10-7	dMED 110 10-7	dMED 150 10-7	dMED 150 10-7	dMED 300 10-7
<b>Number of receivers</b>	2	2	2	2	3	3	3
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1000 11 Bar	1500 11 Bar	2000 11 Bar	1500 11 Bar	1500 11 Bar	3000 11 Bar
<b>Part Number (With Vessels)</b>	4233601261	4233600887	4233601262	4233600888	4233601263	4233600889	4233601264
<b>Part Number (Without Vessels)</b>	4233601281	4233600907	4233601282	4233600908	4233601283	4233600909	4233601284

\* Plant based on a 50/50 split of medical and surgical air design flow.

## HTM02-01 Combined Medical &amp; Surgical Air 7 bar - 60Hz

## ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	cAIR-TZF	cAIR-TZF	cAIR-TZF	cAIR-QZF	cAIR-QZF	cAIR-QZF	cAIR-PZF
<b>Model Description</b>	CAIR-TZF7-1760 HTM02-01 60Hz	CAIR-TZF7-2322 HTM02-01 60Hz	CAIR-TZF7-2744 HTM02-01 60Hz	CAIR-QZF7-3715 HTM02-01 60Hz	CAIR-QZF7-4644 HTM02-01 60Hz	CAIR-QZF7-5242 HTM02-01 60Hz	CAIR-PZF7-8906 HTM02-01 60Hz
<b>Design Flow (L/min) *</b>	1760	2322	2744	3715	4644	5242	8906
<b>Actual Plant Flow (L/min)</b>	1460	1928	2277	3123	3855	4351	6679
<b>Number of compressors</b>	3	3	3	4	4	4	5
<b>Type of compressor</b>	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED22 10 Bar
<b>Type of dryer</b>	dMED 075 10-7	dMED 075 10-7	dMED 090 10-7	dMED 110 10-7	dMED 150 10-7	dMED 220 10-7	dMED 300 10-7
<b>Number of receivers</b>	2	2	2	2	3	3	3
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1500 11 Bar	1500 11 Bar	2000 11 Bar	1500 11 Bar	1500 11 Bar	3000 11 Bar
<b>Part Number (With Vessels)</b>	4233601281	4233600907	4233601282	4233600908	4233601283	4233600909	4233601284
<b>Part Number (Without Vessels)</b>	4233601281	4233600907	4233601282	4233600908	4233601283	4233600909	4233601284

\* Plant based on a 50/50 split of medical and surgical air design flow.



### HTM2022 Medical Air 4 bar - 50Hz

#### ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	mAIR-DZF	mAIR-DZF	mAIR-DZF	mAIR-DZF	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-QZF
<b>Model Description</b>	mAIR-DZF4-1635 HTM2022 50Hz	mAIR-DZF4-2000 HTM2022 50Hz	mAIR-DZF4-2427 HTM2022 50Hz	mAIR-DZF4-3423 HTM2022 50Hz	mAIR-TZF4-4363 HTM2022 50Hz	mAIR-TZF4-5109 HTM2022 50Hz	mAIR-TZF4-6966 HTM2022 50Hz	
<b>Design Flow (L/min) *</b>	1635	2000	2427	3423	4363	5109	6966	
<b>Number of compressors</b>	2	2	2	3	3	3	4	
<b>Type of compressor</b>	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED22 8.6 Bar	
<b>Type of dryer</b>	dMED 090 7.5-4	dMED 110 7.5-4	dMED 150 7.5-4	dMED 150 7.5-4	dMED 220 7.5-4	dMED 220 7.5-4	dMED 300 7.5-4	
<b>Number of receivers</b>	1	1	1	1	1	1	2	
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1000 11 Bar	1500 11 Bar	2000 11 Bar	3000 11 Bar	3000 11 Bar	2000 11 Bar	
<b>Part Number (With Vessels)</b>	4233601291	4233600917	4233601292	4233600918	4233601293	4233600919	4233601294	4233600920
<b>Part Number (Without Vessels)</b>	4233601316	4233600942	4233601317	4233600943	4233601318	4233600944	4233601319	4233601320

\* Actual Plant Flow is equal to Design Flow (DF)

### HTM2022 Medical Air 4 bar - 60Hz

#### ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)

Model Name	mAIR-DZF	mAIR-DZF	mAIR-DZF	mAIR-DZF	mAIR-TZF	mAIR-TZF	mAIR-TZF	mAIR-QZF
<b>Model Description</b>	mAIR-DZF4-1593 HTM2022 60Hz	mAIR-DZF4-2000 HTM2022 60Hz	mAIR-DZF4-2457 HTM2022 60Hz	mAIR-TZF4-3339 HTM2022 60Hz	mAIR-TZF4-4327 HTM2022 60Hz	mAIR-TZF4-5109 HTM2022 60Hz	mAIR-TZF4-6966 HTM2022 60Hz	
<b>Design Flow (L/min) *</b>	1593	2000	2457	3339	4327	5109	6966	
<b>Number of compressors</b>	2	2	2	3	3	3	4	
<b>Type of compressor</b>	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED15 8.6 Bar	ZT MED18 8.6 Bar	ZT MED22 8.6 Bar	ZT MED22 8.6 Bar	
<b>Type of dryer</b>	dMED 090 7.5-4	dMED 110 7.5-4	dMED 150 7.5-4	dMED 150 7.5-4	dMED 220 7.5-4	dMED 220 7.5-4	dMED 300 7.5-4	
<b>Number of receivers</b>	1	1	1	1	1	1	2	
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1000 11 Bar	1500 11 Bar	2000 11 Bar	3000 11 Bar	3000 11 Bar	2000 11 Bar	
<b>Part Number (With Vessels)</b>	4233601316	4233600942	4233601317	4233600943	4233601318	4233600944	4233601319	4233601320
<b>Part Number (Without Vessels)</b>	4233601321	4233600947	4233601322	4233600948				

\* Actual Plant Flow is equal to Design Flow (DF)



**HTM2022 Combined Medical & Surgical Air 7 bar - 50Hz**

**ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)**

Model Name	cAIR-DZF	cAIR-DZF	cAIR-DZF	cAIR-DZF	cAIR-TZF	cAIR-TZF	cAIR-QZF	cAIR-HZF
<b>Model Description</b>	<i>cAIR-DZF7-1527 HTM2022 50Hz</i>	<i>cAIR-DZF7-1802 HTM2022 50Hz</i>	<i>cAIR-DZF7-2336 HTM2022 50Hz</i>	<i>cAIR-DZF7-3000 HTM2022 50Hz</i>	<i>cAIR-TZF7-3715 HTM2022 50Hz</i>	<i>cAIR-TZF7-4671 HTM2022 50Hz</i>	<i>cAIR-QZF7-7033 HTM2022 50Hz</i>	<i>cAIR-HZF7-9391 HTM2022 50Hz</i>
<b>Design Flow (L/min) *</b>	1527	1802	2336	3000	3715	4671	7033	9391
<b>Number of compressors</b>	2	2	2	3	3	3	4	6
<b>Type of compressor</b>	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED22 10 Bar	ZT MED18 10 Bar
<b>Type of dryer</b>	dMED 045 10-7	dMED 075 10-7	dMED 075 10-7	dMED 110 10-7	dMED 110 10-7	dMED 150 10-7	dMED 220 10-7	dMED 300 10-7
<b>Number of receivers</b>	1	1	1	1	1	1	2	2
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1000 11 Bar	1500 11 Bar	1500 11 Bar	2000 11 Bar	3000 11 Bar	2000 11 Bar	3000 11 Bar
<b>Part Number (With Vessels)</b>	4233601298	4233600924	4233601299	4233600925	4233601300	4233600927	4233601301	4233600928
<b>Part Number (Without Vessels)</b>	4233601323	4233600949	4233601324	4233600950	4233601325	4233600951	4233601326	4233600953

\* Actual Plant Flow is equal to Design Flow (DF)

**HTM2022 Combined Medical & Surgical Air 7 bar - 60Hz**

**ZT MED Fixed Speed Screw Compressors, dMED dryer (Standard QDT)**

Model Name	cAIR-DZF	cAIR-DZF	cAIR-DZF	cAIR-TZF	cAIR-TZF	cAIR-TZF	cAIR-QZF	cAIR-HZF
<b>Model Description</b>	<i>cAIR-DZF7-1527 HTM2022 60Hz</i>	<i>cAIR-DZF7-1928 HTM2022 60Hz</i>	<i>cAIR-DZF7-2354 HTM2022 60Hz</i>	<i>cAIR-TZF7-3000 HTM2022 60Hz</i>	<i>cAIR-TZF7-3715 HTM2022 60Hz</i>	<i>cAIR-TZF7-4707 HTM2022 60Hz</i>	<i>cAIR-QZF7-7087 HTM2022 60Hz</i>	<i>cAIR-HZF7-10021 HTM2022 60Hz</i>
<b>Design Flow (L/min) *</b>	1527	1928	2354	3000	3715	4707	7087	10021
<b>Number of compressors</b>	2	2	2	3	3	3	4	6
<b>Type of compressor</b>	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED15 10 Bar	ZT MED18 10 Bar	ZT MED22 10 Bar	ZT MED22 10 Bar	ZT MED18 10 Bar
<b>Type of dryer</b>	dMED 045 10-7	dMED 075 10-7	dMED 075 10-7	dMED 110 10-7	dMED 110 10-7	dMED 150 10-7	dMED 220 10-7	dMED 300 10-7
<b>Number of receivers</b>	1	1	1	1	1	1	2	2
<b>Receiver volume (l) (each)</b>	1000 11 Bar	1000 11 Bar	1500 11 Bar	1500 11 Bar	2000 11 Bar	3000 11 Bar	2000 11 Bar	3000 11 Bar
<b>Part Number (With Vessels)</b>	4233601323	4233600949	4233601324	4233600950	4233601325	4233600951	4233601326	4233600953
<b>Part Number (Without Vessels)</b>	4233601323	4233600949	4233601324	4233600950	4233601325	4233600951	4233601326	4233600953

\* Actual Plant Flow is equal to Design Flow (DF)